

## CLAIMS

1. Apparatus for frequency correction in a wireless communications system, wherein transmissions within the system experience a Doppler effect, comprising:

a first frequency synthesizer for generating a carrier signal oscillating at a rate responsive to a first input;

a counter coupled to said first input for generating a Doppler compensation signal, said counter having a clock input; and

a second frequency synthesizer coupled to said clock input for generating a clock signal oscillating at a rate responsive to a rate input;

wherein said rate input adjusts over time according to a predetermined sequence so that said Doppler compensation signal compensates for said Doppler effect.

2. The apparatus according to claim 1, wherein the wireless communications system comprises a satellite communications system including an earth-based gateway, a satellite, and a user terminal, and said frequency correction apparatus is located at said earth based gateway.

3. A system for frequency correcting transmissions between first and second transceivers in a wireless communications system to minimize Doppler frequency effects, comprising:

carrier generating means in the first transceiver for generating a carrier signal oscillating at a rate responsive to a first input;

Doppler compensation means coupled to said carrier generating means for generating a Doppler compensation signal; and

clock generating means coupled to a clock input of said Doppler compensation means for generating a clock signal oscillating at a rate responsive to a predetermined rate; and

rate input means coupled to said clock generating means and adjustable over time according to a predetermined sequence so that said Doppler compensation signal compensates for said Doppler effect.

4. The system according to claim 3, wherein the wireless communications system  
2 comprises a satellite communications system including an earth-based gateway  
incorporating the first transceiver, a satellite incorporating the second transceiver, and a  
4 user terminal.

5. A method for frequency correction of Doppler effects in a wireless  
2 communications system, comprising:

generating a carrier signal oscillating at a rate responsive to a first input;  
4 generating a Doppler compensation signal;  
generating a clock signal oscillating at a rate responsive to a rate input; and  
6 adjusting said rate input over time according to a predetermined sequence so that  
said Doppler compensation signal compensates for said Doppler effect.